USSR UDC 632.952:581.1 / 634.75/721

POLYAKOV, I. M., NILOVA, V. P., KSENDZOVA, E. N., ZARUBINA, M. A., RAKITINA, R. N., All-Union Institute of Plant Protection, Leningrad, All-Union Academy of Agricultural Sciences imeni V. I. Lenin

"Investigation of the Nature of Nitrafen Action on Berry Cultures"

Moscow, Khimiya v Sel'skom Khozyaystve, Vol 8, No 6, Jun 70, pp 31-34

Abstract: The study was carried out on first year "Festival'naya" strawberries and black currant of the "Liya Productive" and "Lakston" line. The plants were treated in early spring, the strawberries being sprayed twice at a week's interval with a 1% nitrafen solution and the currants once with a 2% solution. The leaves were subjected to biochemical analysis 20 days later and the fruit was checked as it ripened. The leaves of the treated strawberry plants exhibited higher levels of chlorophyll, carbohydrates, and ascorbic acid in comparison to controls, there was no indication of peroxidase activity, the polyphenoloxidase activity was increased, and

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POLYAKOV, I. M., et al, Khimiya v Sel'skom Khozyaystve, Vol 8, No 6, Jun 70, pp 31-34

the activity of cytochromoxidase and ascorbatoxidase was lowered. Both types of currant showed increased content of nitrogenous materials and chlorophyll under the influence of nitrafen, and their cytochromoxidase and peroxidase activity was elevated. As far as the content of carbohydrates and vitamin C and the activity of ascorbatoxidase are concerned, the two types of currant showed different effects to the action of nitrafen. Neither nutritional nor taste qualities of the berries were affected by treatment with nitrafen.

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USSR

UDC 669.296.5.294.537.311.3.669.98

FEDOTOV, L. N., KIRSHENINA, I. I., ZARUBINA, O. A.

"Electric Resistance of Zirconium-Tantalum Alloys Under Hydrostatic Pressure"

Probl. Sverkhprovodyashch. Materialov [Problems of Superconducting Materials -- Collection of Works], Moscow, Nauka Press, 1970, pp. 156-160. (Translated from Referativnyy Zhurnal Metallurgiya, No. 5, 1971, Abstract No. 5 I793 by the authors).

Translation: The electric resistance is studied as a function of hydrostatic pressure of up to 15 kbar for alloys of Zr with 1.84 and 2.7 at.% Ta, near the $\alpha \rightarrow \beta$ conversion boundary. In annealed specimens, a change was observed in the slope of the R(P) curves in the 4-6 kbar area for the alloy Zr-2.7 at.% Ta and in the 8-10 kbar area for the alloy Zr-1.84 at.% Ta. A decrease was noted in the resistance after removal of the pressure in comparison with its initial value both in hardened and in annealed specimens of Zr-Ta alloys, which is related to the formation of the ω phase. The results produced are compared with the results of measurement of R(P) for Ti-Nb alloys. 7 figs; 1 table; 4 biblio refs.

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USSR UDC 532.111:537.311.31:669.296'.294

FEDOTOV, L. N., KIRSHENINA, I. I., and ZARUBINA, O. A.

"Resistivity of Zirconium-Tantalum Alloys Under Hydrostatic Pressure"

Problemy Sverkhprovodyashchikh Materialov [Problems of Superconducting Materials — Collection of Works], Moscow, Nauka Press, 1970, pp 156-160

Translation: The dependence of resistivity on hydrostatic pressure up to 15 kbar is studied for alloys of Zr with 1.84 and 2.7 at.% Ta, near the $\alpha \rightarrow \beta$ transition boundary. In annealed specimens of the alloys, a change in the slope of the R(P) curves was observed in the 4-6 kbar area for the alloy Zr - 2.7 at.% Ta and at 8-10 kbar for the alloy Zr - 1.84 at.% Ta. A decrease in resistance after removal of pressure in comparison with the initial value was noted both for hardened and for annealed specimens of Zr-Ta alloys, which is related to the formation of the ω phase. The results produced are compared with the results of measurement of R(P) for Ti-Nb alloys.

7 figures; 1 table; 4 biblio. refs.

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1/2 013 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--DETERMINATION OF CALCIUM IN MAGNETIC ALLOYS -U-

AUTHOR-(04)-CHASHCHINA, O.V., SLEZKO, N.I., OTMAKHOVA, Z.I., ZARUBINA, R.F.

COUNTRY OF INFO--USSR

SOURCE--ZAVOD. LAB. 1970, 36(2), 180-1

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--MAGNETIC ALLOY, CALCIUM, METAL CHEMICAL ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1996/1883 STEP NO--UR/0032/70/036/002/0180/0181

CIRC ACCESSION NO--AP0118845

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720018-6"

UNCLASSIFIED PROCESSING DATE--23OCT70

2/2 013
CIRC ACCESSION NO--AP0118845
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A 0.25-G SAMPLE OF ALLOY CONTG. 0.9-0.003PERCENT CA WAS DISSOLVED IN 5 ML 4N HNO SUB3. THE SOLN. WAS EVAPD. TO A SYRUPY CONSISTENCY AND, AFTER ADDN. OF 20 ML 10N HCL, IT WAS PASSED THROUGH 11 G OF ANION EXCHANGER AB-17-8 IN THE CL PRIME NEGATIVE FORM. IN THIS WAY FE, CU, AND CO WERE SEPD. AND CA WAS DETD. IN SOLN. IN THE PRESENCE OF AL 8, TI 0.5, AND NI 14PERCENT BY EMISSION SPECTROGRAPHY. FACILITY: TOMSK. GOS. UNIV. IM. KUIBYSHEVA, TOMSK, USSR.

UNCLASSIFIED

1/2 029 UNCLASSIFIED

TITLE--DEFORMATION STACKING FALTS IN NICKEL GERMANIUM ALLOYS -U-

PROCESSING DATE--30OCT70

AUTHOR-(02)-PINES, B.YA., ZARUBINA, S.V.

COUNTRY OF INFO--USSR

SOURCE--FIZ. METAL METALLOVED. 1970, 29(3), 660-70

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--NICKEL ALLOY, GERMANIUM ALLOY, X RAY ANALYSIS, CRYSTAL DISLOCATION, METAL DEFORMATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0943

STEP NO--UR/0126/70/029/003/0669/0670

CIRC ACCESSION NO--AP0121545

UNCLASSIFIED

2/2 029 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0121545

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PROBABILITY OF FORMATION AND THE ENERGY OF DEFORMATION STACKING FALTS IN NI,GE ALLOYS WERE DETD. BY THE X RAY METHOD OF APPLYING HARMONIC ANAL. TO THE SHAPE OF THE LINES. THE ALLOYS WERE PREPD. FROM ELECTROLYTIC NI AND GE IN THE FOLLOWING CONCNS.: 1.5, 3.7, 6.5, AND 9 AT.PERCENT GE. A CHANGE IN THE ANGULAR DISTANCE BETWEEN THE (111) AND (200) PEAKS WAS OBSD. FOR ALL THE FILED ALLOYS STUDIED (AS COMPARED TO THE SAME ANNEALED ALLOYS), WHICH IN TURN MADE IT POSSIBLE TO DET. THE PROBABILITY OF FORMATION OF DEFORMATION STACKING FAULTS. THE THERMAL EXPANSION COEFF. INCREASES WITH INCREASING GE CONCN., AND IT INCREASES SHARPLY AFTER DEFORMATION OF THE ALLOY AT LIQ. N TEMP. THE STACKING FAULT ENERGY WAS DETD. FROM THE DISLOCATION D. FACILITY: KHAR'KOV. GOSUNIV. IM. GOR'KOGO, KHARKOV, USSR.

UNCLASSIFIED

USSR

UDC 621.382.002:621.382.32

ZARUDNYY, D.I., MORALEV, S.A., MOROZOV, A.A.

"Problems Of Planning And Analysis During Simulation Of The Technological Process Of Production Of Integrated Circuits Based On MIS Structures"

V sb. Mikroelektronika (Microelectronics--Collection Of Works), Moscow, Izd-vo "Sovetskoye Radio," No 4, 1971, pp 294-302

Abstract: The specific special features of the use of mathematical statistics during selection of a strategy of systematic investigation are studied and experiments and their interpretation are conducted, as applied to the technological process of production of integrated circuits based on metal-insulator-semiconductor (MIS) structures. The principal stages of the solution of the problems considered are shown in the form of a block diagram of the control process. A complex algorithm and a program using algorithmic language for the "Minsk-22" electronic computer were developed for solution of the problems considered. The mathematical provision worked out can be extended to other forms of technological processes. 2 fig. 15 ref.

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USSR

UDC 621.382.016.35

ZARUDSKIY, V. F., LEVITSKIY, K. B., NAUMENKO, V. G., UKHIN, N. A.

"Comparative Results of Neutron Irradiation of Medium-Power High-Frequency Diffusion and Diffusion-Ion NPN Silicon Transistors"

Moscow, Poluprovodnikovyye Pribory i ikh Primeneniye, No 24, Izd-vo "Sovetskoye Radio", 1970, pp 27-30

Abstract: The authors study neutron irradiation of NPN silicon transistors made by double diffusion of dopants into an epitaxial layer, and by single diffusion of boron with subsequent ion injection of phosphorus to produce the emitter junction. It is shown that the radiation resistance of both types of transistors is determined by the radiation properties of the material of the base layer and is independent of the technological procedure used to make the emitter junction. The results also show that ion doping has considerable promise as a technological procedure for making transistors with optimum radiation resistance. One figure, one table, bibliography of four titles.

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1/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--KINETICS OF EPSILON CAPROLACTAM VINYLATION -U-

AUTHOR-(05)-KONONOV, N.F., ZARUTSKIY, V.V., POGORELOV, A.G., PISARENKO, V.N., KOSMINSKAYA, G.A.

COUNTRY OF INFO--USSR

SOURCE--ZH. FIZ. KHIM. 1970, 44(2), 412-15

DATE PUBLISHED----------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--REACTION KINETICS, CAPROLACTAM, VINYL COMPOUND, ORGANIC SYNTHESIS, ACTIVATION ENERGY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0893 STEP NO--UR/0076/70/044/002/0412/0415

CIRC ACCESSION NO--AP0124556

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0124556

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE KINETICS OF THE SYNTHESIS OF N,VINYLCAPROLACTAM (I) FROM C SUB2 H SUB2 AND CAPROLACTAM (II) WITH NA CAPROLACTAM CATALYST AT 125-45DEGREES WERE STUDIED. EXPTL. CONDITIONS WERE CHOSEN TO PROVIDE A NON RANDOMIZED COMPLETE FACTORIAL PLAN FOR THE VARIABLE TEMP., REACTION TIME, AND CATALYST CONCN. AT 2 LEVELS. WITH THE USE OF AN ITERATIVE METHOD, VALUES WERE CALCD. FOR THE PRE EXPONENTIAL FACTORS, ACTIVATION ENERGIES, AND REACTION ORDERS WITH RESPECT TO THE REACTANTS, FOR THE REACTIONS INVOLVED IN THE SCHEME II PLUS C SUB2 H SUB2 YIELDS I; II YIELDS RESINOUS PRODUCTS.

FACILITY: INST. ORG. KHIM., MOSCOW, USSR.

UNCLASSIFIED

1/3 011 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--COMPUTER STUDY OF COMPOUND DRUGS AND THEIR COMPONENTS USED IN EASTERN MEDICINE REPORT 1 GENERAL CHARACTERISTICS OF THE PRINCIPLES AND
AUTHOR-(03)-GRINEVICH, M.A., ZARVA, L.A., BERKMAN, I.I.

COUNTRY OF INFO--USSR

SOURCE--LENINGRAD, RASTITELNYYE RESURSY, VOL 6, NO 1, 1970, PP 45-53

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--DRUG TESTING, PROCESSED PLANT PRODUCT, PROCESSED ANIMAL PRODUCT, COMPUTER APPLICAITON

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3001/0846 STEP NO--UR/0503/70/006/001/0045/0053

CIRC ACCESSION NO--AP0126522
UNCLASSIFIED

2/3 011 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0126522

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE TREAITIONAL MEDICINAL THERAPY OF EASTERN MEDICINE IS OF PARTICULAR INTEREST BECAUSE COMPOUND DRUGS INCLUDING 15-20 INGREDIENTS WERE USED. THE PRESCRIPTIONS INCLUDE SEVERAL PLANTS (UP TO 7) WITH THE SAME ACTION, APPARENTLY INCREASING THE GENERAL EFFECT. MORE THAN 200 PRESCRIPTIONS FROM SOUTHEAST ASIA AND FROM THE INSTITUTE OF EASTERN MEDICINE OF THE DEMOCRATIC REPUBLIC OF VIETNAM IN HANOI WERE ANALYZED BY COMPUTER. IT WAS ESTABLISHED THAT: 1) MOST OF THE PRESCRIPTIONS HAVE FOUR TO ELEVEN INGREDIENTS; 2) THE PRESCRIPTIONS ARE MOSTLY DESIGNED FOR THERAPY OF MALIGNANT NEOPLASM, HYPERTENSION, TUBERCULOSIS, ANEMIA, NEPHRITIS, DIABETES AND ATHEROSCLEROSIS; 3) THE MOST COMPLIATED COMPOUNDS ARE FOR PSYCHASTEHNIA, STERILITY, ATHEROSCLEROSIS AND HYPERTENSION; 4) THE PLANTS MOSTLY USED ARE ANCIENT FLOWERING PLANTS (MESANTHOPHYTA); AND 5) THE UNDER GROUND PARTS OF PLANT SPECIES AND THE REPRODUCTIVE ORGANS OF YOUNGER SPECIER ARE USED, CONTRARY TO THE MODERN USE OF MEDICINAL PLANTS. IT HAS BEEN STATED THAT THE PLANTS USED IN EASTERN MEDICINE ARE NOT RICH IN ALKALOIDS, BUT MOSTLY PLANTS CONTAINING GLUCOSIDES, COUMARIN, FLAVONOIDS, ETC. WATER EXTRACTS ARE ADMINISTERED PER OS AND IN RELATIVELY HIGH DOSES (UP TO 10 G), DUE TO THE LOW ALKALOID CONTENT. THIS IS ALL CONTRARY TO THE ACCEPTED USE OF MEDICINAL PLANTS. PLANTS WITH A TONIC EFFECT ARE MOST FREQUENTLY USED IN EASTERN MEDICINE, FOLLOWED BY PLANTS WITH DIURETIC, ANTITOXIC, SEDATIVE, EFFECTS, AND THEN BY PLANTS WITH STIMULATING EFFECT. SOME MEDICINES OF ANIMAL ORIGIN ARE USED ALSO (BONES OF TIGER, MONKEY, LIZZARD, ETC.).

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3/3 011 UNCLASSIFIED PROCESSING DATE--23OCT70
CIRC ACCESSION NO--AP0126522
ABSTRACT/EXTRACT--FACILITY: INSTITUTE OF BIOLOGICALLY ACTIVE SUBSTANCES, AND DEPARTMENT OF AUTOMATION AND TECHNICAL CYBERNETICS, FAR EASTERN BRANCH OF ACADEMY OF SCIENCES USSR, VLADIVOSTOK.

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UDC: 615.89+681.142

GRINEVICH, M. A., ZARVA, L. A., and BERKHMAN, I. I., Institute of Biologically Active Substances, and Department of Automation and Technical Cybernetics, Far-Eastern Branch of Academy of Sciences USSR, Vladivostok

"Computer Study of Compound Drugs and Their Components Used in Eastern Medicine Report 1 General Characteristics of the Principles and Structure of Medicinal Therapy in Eastern Medicine"

Leningrad, Rastitelnyye Resursy, Vol 6, No 1, 1970, pp 45-53

Abstract: The traditional medicinal therapy of eastern medicine is of particular interest because compound drugs including 15-20 ingredients were used. The prescriptions include several plants (up to 7) with the same action, apparently increasing the general effect. More than 200 prescriptions from Southeast Asia and from the Institute of Eastern Medicine of the Democratic Republic of Vietnam in Hanoi were analyzed by computer. It was established that: 1) most of the prescriptions have four to eleven ingredients; 2) the prescriptions are mostly designed for therapy of malignant neoplasm, hypertension, tuberculosis, anemia, nephritis, diabetes and atherosclerosis; 3) the most compliated compounds are for psychasthenia, sterility, atherosclerosis and hypertension; 4) the plants mostly used are ancient flowering plants (Magnoliophyta); and 5) the underground parts of plant species and the reproductive organs of younger species are used, contrary to the modern use of medicinal plants. It has been

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GRINEVICH, M. A., et al, Rastitelnyye Resursy, Vol 6, No 1, 1970, pp 45-53

stated that the plants used in Eastern Medicine are not rich in alkaloids, but mostly plants containing glucosides, coumarin, flavonoids, etc. Water extracts are administered per os and in relatively high doses (up to 10 g), due to the low alkaloid content. This is all contrary to the accepted use of medicinal plants. Plants with a tonic effect are most frequently used in eastern medicine, followed by plants with diuretic, antitoxic, sedative, effects, and then by plants with stimulating effect. Some medicines of animal origin are used also (bones of tiger, monkey, lizzard, etc.).

1/2 015 UNCLASSIFIED PROCESSING DATE--13NOV70
TITLE--CHANGE IN THE COMPOSITION OF THE METAL AND SLAG DURING THE OXYGEN BLOWING OF PIG IRON WITH VARIOUS SILICON AND MANGANESE CONTENTS -U-
AUTHOR-(03)-ZARVIN, E.YA., NIKOLAYEV, A.L., VOLOVICH, M.I.

COUNTRY OF INFO--USSR

SOURCE--IZVEST. V.U.Z., CHERNAYA MET., 1970, (2), 47-52

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--PIG IRON, SLAG, SILICON CONTAINING ALLOY, MANGANESE CONTAINING ALLOY, BIBLIOGRAPHY, PHOSPHORUS, DESULFURIZATION, METAL OXYGEN CONVERSION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--2000/0559 STEP NO--UR/0148/70/000/002/0047/0052

CIRC ACCESSION NO--AP0124254

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720018-6"

2/2 015 UNCLASSIFIED PROCESSING DATE--13NOV70
CIRC ACCESSION NO--AP0124254
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CONVERSION OF PIG IRON CONTG. VARIOUS PROPORTIONS OF SI AND MN IN A 30-60 TON O CONVERTER AND THE KINETICS OF SLAG FORMATION WERE STUDIED WITH SPECIAL REF. TO CHANGES TAKING PLACE IN THE COMPOSITION OF THE METAL AND THE SLAG DURING VARIOUS STAGES OF THE PROCESS AND THEIR RELATION TO TEMP. AND BLOWING CONDITIONS. THUS THE DEGREE OF P AND S REMOVAL WAS VERY SENSITIVE TO THE COMPOSITION OF THE PIG IRON, PARTICULARLY ITS MN AND SI CONTENT. IN PRINCIPLE PIG IRON CONTG. ONLY A SMALL QUANTITY OF MN MAY BE USED SUCCESSFULLY IN THE CONVERSION PROCESS.

UNCLASSIFIED

USSR UDC: 533.6.011.3

GOLOVINA, L. G., DEYCH, M. Ye., ZARYANKIN, A. Ye., ETT, V. V., Moscow

"Particulars of Gas Flow in Exit Cones at Near-Sonic Velocities"

Moscow, Izv. AN SSSR: Energetika i Transport, No 3, May/Jun 72, pp 123-128

Abstract: An investigation is made of the details of high subsonic and near-sonic compressible flow in a wind tunnel in the section where a cylindrical or converging profile meets a divergent channel (exit cone). It is found that an increase in the average value of the dimensionless velocity of gas flow in the initial section leads to an abrupt jump in longitudinal pressure gradients, as well as to an increase in nonuniformity of flow across the section. Under the effect of strong negative pressure gradients, degeneration of turbulence is observed in the section preceding the exit cone. This effect is a direct result of compressibility. The undesirable deformation of the velocity field preceding the exit cone combined with posi-

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GOLOVINA, L. G., Izv. AN SSSR: Energetika i Transport, No 3, May/Jun 72, pp 123-128

tive pressure gradients in the divergent channel leads to flow detachment in the immediate vicinity of the neck of the tunnel, which is the cause of a critical drop in exit cone economy at high subsonic and near-sonic gas flow velocities. The degree of degeneration of turbulence is a function of the Reynolds number. Flow detachment can be delayed by increasing the Reynolds number as the relative velocity of gas flow in the input section increases.

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USSR UDC: 547.963.3:547.854:547.222

GRIN'EVA, N. I., ZARYTOVA, V. F., and KNORRE, D. G., Novosibirsk Institute of Organic Chemistry, Academy of Sciences USSR, Siberian Department

"Alkylating Derivatives of Nucleic Acid Components 7. Methyl 2',3'-O-[4-(N-2-Chloroethyl-N-methylamino)benzylidene]-uridine-5'-Phosphate"

Leningrad, Zhurnal Obshchey Khimii, Vol 40, No 1, Jan 70, pp 215-222

Abstract: Preparation was studied of the title compound (I) to be used as alkylating agent of nucleic acids in aqueous solution. Mixing methyl uridine-5'-phosphate (II) and 4-(N-2-chloroethyl-N-methylamino)benzaldehyde (III) in dimethylformamide(DMF) at 70° with 2,2-dimethoxypropane(DMP) and trifluoroacetic acid, after one day at room temperature yielded methyl 2',3'-O-(isopropylidene)uridine-5'-phosphate (IV), along with I and II in various proportions. The yields of the three products varied, depending on concentration of III and the III/DMP ratio. Study of the reaction kinetics established that two side reactions - hydrolysis of I formed in the main reaction and alcoholysis of DMP by II-occur concurrently with formation of I. The study revealed that a shorter reaction time promotes a significant decrease in the content of IV. Kinetic curves of accumulation of various reaction products are shown. Optimum conditions (II 0.115 M, III 0.575 M, DMP 0.46 M,

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GRIDNEVA, N. I., Zhurnal Obshchey Khimii, Vol 40, No 1, Jan 70, pp 215-222

trifluoroacetic acid 1.85 M, 45 min) were found for the preparation of I in 84% yield, of the product containing 88% I and a maximum of 5% II. Purification by paper chromatography with subsequent elution with ethanol gave 45-60% of the chromatographically homogeneous substance containing 70% I. Kinetics of I hydrolysis was studied in aqueous solution at 23° and at different pH values to evaluate the stability of the benzylidene bond in I; this is an important characteristic of an alkylating agent. Kinetic curves of I hydrolysis and the plot of the apparent rate constant of the benzylidene bond hydrolysis versus pH show that the pH of alkylation should not be below six. The pK value of the N-2-cloroethyl-N-methylamino group protonation was calculated to be 3.1.

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1/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70

TITLE--ALKYLATING DERIVATIVES ON NUCLEIC ACID COMPONENTS. VII. METHYL 2 PRIME, 3 PRIME,O,4,N,2, CHLOROETHYL,N,METHYLAMINO,BENZYLIDENE,URIDINES 5

AUTHOR-(03)-GRINEVA, N.I., ZARYTOVA, V.F., KNORRE, D.G.

COUNTRY OF INFO--USSR

SOURCE--ZH. OBSHCH. KHIM. 1970, 40(1), 215-22

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ALKYLATION, NUCLEIC ACID, PHOSPHATE ESTER, AMINE DERIVATIVE, CHLORINATED ORGANIC COMPOUND, HYDROLYSIS, PAPER CHROMATOGRAPHY, ACETAL, CHEMICAL REACTION KINETICS, BENZENE DERIVATIVE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1751 STEP NO--UR/0079/70/040/001/0215/0222

CIRC ACCESSION NO--AP0112737

UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--30OCT70

CIRC ACCESSION NO--AP0112737

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. KEEPING NH SUB4 URIDINE 5 PRIME,PHOSPHATE ME ESTER IN ME SUB2 CO WITH ME SUB2 C-(OME) SUB2 AND CF SUB3 CO SUB2 H 3 HR GAVE AFTER TREATMENT WITH ET SUB3 N AND REPPTN. OF THE PRODUCT FROM MEOH WITH ET SUB2 O THE ME ESTER OF 2 PRIME, 3 PRIME,O,ISOPROPYLIDENEURIDINE 5 PRIME, PHOSPHATE (I) WHICH IN 2.5 HR AT 70DEGREES IN 50PERCENT AQ. ACOH GAVE URIDINE 5 PRIME,PHOSPHATE ME ESTER. THE KINETIC DATA FOR THE REACTION OF THE LATTER WITH ME SUB2 C(OME) SUB2 WERE PRESENTED. THE REACTION OF THIS ESTER WITH 4C'CH SUB2 CH SUB2-NMEC SUB6 H SUB4 CHO (II) IN ME SUB2 NCHO AT MINUS 70DEGREES IN THE PRESENCE OF ME SUB2 C(OME) SUB2 AND CF SUB3 CO SUB2 H AT MINUS 70DEGREES, THEN 1 DAY AT ROOM TEMP., GAVE SOME UNIDENTIFIED MATERIAL, ME ESTER OF 2 PRIME, 3 PRIME,O,(4,(N,2, CHLOROETHYL,N,METHYLAMINO)BENZYLIDENE)URIDINE 5 PRIME,PHOSPHATE AND I, WHICH WERE SPED. BY PAPER CHROMATOG. HYDROLYSIS OF THE PRODUCT IN 0.01 N HCL 0.5 HR GAVE URIDINE 5 PRIME,PHOSPHATE ME ESTER AND THE KINETIC DATA WERE SHOWN. REACTION OF URIDINE 5 PRIME,PHOSPHATE ME ESTER WITH II LEADS TO 3 TYPES OF PRODUCTS: AN ACETAL, PRODUCTS OF HYDROLYSIS AND PRODUCTS OF ALCOHOLYSIS. FACILITY: NOVOSIBIRSK. INST. ORG KHIM., NOVOSIBIRSK, USSR.

UNCLASSIFIED

ZARYTOVA V. F.

Acc. Nr: AP0044690 Ref. Code: UR 0463

PRIMARY SOURCE: Molekulyarnaya Biologiya, 1970, Vol 4, Nr 1, pp 30-36

THE INTERACTION OF TRANSFER RNA WITH ACETALS OF 4-(N-2-CHLOROETHYL-N-METHYLAMINO)-BENZALDEHYDES— DERIVATIVES OF URIDINE AND URIDINE-5'-METHYLPHOSPHATE

Belikova, A. M.; Vakhrusheva, T. Ye.; Vlasov, V. V.; Grineva, N. I.; Zarytova, V. F.; Knorre, D. G.; Tepleva, N. M.

Institute of Organic Chemistry, Siberian Branch of the Academy of Sciences, USSR, Novosibirsk

It has been shown that the acetals of 4-(N-2-chloroethyl-N-methylamino)-benzaldehyde (RCl) — derivatives of uridine (URCl) and uridine-5'-methylphosphate (mepURCl) do alkylate tRNA. The efficiencies of the reagents are determined as a ratio of the velocity of tRNA modification to the velocity of all by-processes. The efficiencies of URCl and

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REEL/FRAME 19771423

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RCl are of the same order of magnitude and two orders greater, respectively, as compared with that of mepURCl. In the presence of *tris* the efficiency of URCl decreases significantly and that of mepURCl is altered only slightly. The efficiency of URCl decreases in the presence of mepU due to the interaction of an intermediate cation with primary phosphates of mepU. It suggests that the efficeincy of mepURCl is low due to the presence of primary phosphate in its molecule. The quantitative analysis of the data obtained makes it possible to conclude that the interaction of mepUR+ with phosphate is an intramolecular process.

USSR

DEMIKHOVS'KA, A. A., ZAKHARENKO, N. I., ZARYTS'KYY, A. M., and MEDNYK, M. R., Kiev Scientific Research Institute of Epidemiology, Microbiology, and Parasitology, Kiev

"Comparative Study of the Nucleotide Composition of DNA of Salmonella typhi Strains of Different Phage Types"

Kiev, Mikrobiologicheskiy Zhurnal, Vol 33, No 6, Nov/Dec 71, pp 751-752

Abstract: The nucleotide composition of DNA of S. typhi of the phage types A, F_1, D_1, D_6, C_1, and Imperfect (of an unknown phage type) was studied. Isolation of DNA was carried out by the Kirby-Georgiyev phenol method modified by Demikhovs'ka. The nucleotide composition was determined chromatographically. The content of guanine (G), adenine (A), cytosine (C), and thymine (T) and the DNA specificity coefficient GC/AT were determined. There were no significant differences in the content of individual nucleotides between strains of the same phage type. The content of GC [G + C] was 53.4, 52.7, 55.2, 56.7, 55.1, and 54.6 percent for A, F_1, D_1, D_6, C_1, and Imperfect, respectively. GC/AT was 1.15, 1.13, 1.23, 1.32, 1.23, and 1.20 for A, F_1, D_1, D_6, C_1, and Imperfect, respectively. Statistically valid differences were established only for D_1 and D_6, the DNA guanine content of which differed from that found for the

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DEMIKHOVS'KA, A. A., et al., Mikrobiologicheskiy Zhurnal, Vol 33, No 6, Nov/Dec 71, pp 751-752

other phage types. This was reflected in the high GC/AT value for D_6. One may assume that the differences shown by D_1 and D_6 were due to the presence of the corresponding phages (d_1 and d_6) in the nuclear apparatus of S. typhi of these phage types.

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AN0033650

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UR 9054

AUTHORS-- ZARZHEVSKIY, I., ENGINEER WITH THE CHELYABINSK TRACTOR PLANT, STEPANOV, V., FORMER PARTY ORGANIZER OF THE PLANT, DIRECTOR OF THE PLANT MUSEUM, AND ANDRIYANOV, V. CORRESPONDENT

TITLE-- TANKOGRAD /CITY OF TANKS/

NEWSPAPER-- KOMSOMOL,SKAYA PRAVDA, MARCH 27, 1970, P 2

ABSTRACT-- THE ROLE OF THE CHELYABINSK TRACTOR PLANT /CHTZ/ AND THE MAGNITOGORSK METALLURGICAL COMPLEX /MMK/, AS ARMS SUPPLIERS DURING THE SECOND WORLD WAR, IS REVIEWED. THE ARTICLE IS BASED ON THE FOLLOWING PUBLICATIONS-- "URAL YUZHNYY" BY L. NIKULIN, 1943 - "PATRIOTKI", CHELYABGIZ, 1941 - "TRUDOVOY PODVIG SOVETSKIKH TANKOSTROITELEY", 1946 - SBORNIK "CHELYABINSK", 1967 - MANUFSCRIPT "THE HISTORY OF THE CHELYABINSK TRACTOR PLANT.

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18

19710220

AN0033650

THE NAMES OF THE FOLLOWING TANK DESIGNERS ARE MENTIONED--
ZH. YA. KOTIN, A. A. MOROZOV, N. L. DUKHOV, A. S. YERMOLAYEV,
M. N. SHCHUKIN, N. D. ASTROV, I. YA. TRASHUTIN, AND LEV TROYANOV.
G. NOSOV, DIRECTOR OF THE MMK, AND V. MALYSHEV, COMMISSAR OF THE
TANK INDUSTRY ARE ALSO MENTIONED. ONCE IN THE ARTICLE THE CHTZ IS
REFERRED TO AS PLANT NO. 169. THE ARTICLE CLAIMS THAT HALF OF
ALL T-34 TANKS WERE MADE OF THE STEEL PRODUCED BY THE MMK AS WELL AS
EVERY THIRD ARTILLERY MISSILE.

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19710221

USSR UDC: 621.382.2

ZASAVITSKIY, I. I., MATSONASHVILI, B. N., and SHOTOV, A. P., P. N. Lebedev Physics Institute, Moscow

"Effect of a Magnetic Field on Spontaneous and Coherent p-n Junction Radiation in PbSe"

Leningrad, Fizika i tekhnika poluprovodnikov, No 7, 1972, pp 1288-1291

Abstract: The use of a quantizing magnetic field for investigating the recombination radiation spectrum of semiconductors yields information regarding the energy structure near the spectrum edges. Hence the reason for this paper studying the effect of the magnetic field on radiation from PbSe p-n junctions. For the measurements, the junctions were made of n and p-type material with carrier concentrations of $(1.2\text{-}5.0)\cdot10^{18}$/cc and a mobility of $(1\text{-}3)\cdot10^4$ cm^2 per V·sec at 77° K. The p-n junctions were made by diffusing the Se or Pb from PbSe powder into sealed quartz ampoules. Measurements were made at 4.2° K in magnetic fields of up to 10 kOe in a helium optical cryostat placed in the gap of an ordinary electromagnet. It was found, from the shifts in the radiation lines due

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ZASAVITSKIY, I. I., et al, Fizika i tekhnika poluprovodnikov, No 7, 1972, pp 1288-1291

to the magnetic field, that the radiation junctions occur between the Landau split spin levels. At the temperature of liquid helium, junctions were observed with the electron spin both maintained and reoriented. For laser diodes, shifts of different types caused by the dependence of the refraction index on the magnetic field were also observed. The authors thank Ye. G. Chizhevskiy for preparing the specimens, and A. K. Kupriyanov and V. I. Pogodin for their assistance with the work.

2/2

1/2 021 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--RETUNING OF THE FREQUENCY OF COHERENT RADIATION OF INDIUM ANTIMONIDE USING A MAGNETIC FIELD -U-

AUTHOR-(03)-ZASAVITSKIY, I.I., MATSIONASHVILI, B.N., SHOTOV, A.P.

COUNTRY OF INFO--USSR

SOURCE--FIZ. TEKH. POLUPROV. 1970, 4(2), 337-40

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTROMAGNET, INDIUM ANTIMONIDE, ELECTROMAGNETIC RADIATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1717 STEP NO--UR/0449/70/004/002/0337/0340

CIRC ACCESSION NO--AP0120429

UNCLASSIFIED

2/2 021 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120429

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. WITH THE HELP OF A SPECIALLY CONSTRUCTED SUPERCONDUCTING ELECTROMAGNET THE RETUNING FREQUENCY OF COHERENT RADIATION OF IN ANTIMONIDE WAS STUDIED AT 4.2-10DEGREESK. ON INCREASING THE FIELD FROM 8.6 TO 50 KOE, A CHANGE IN THE WAVELENGTH OF RADIATION FROM 5.243 TO 5.000 MU, WHICH CORRESPONDS TO A RELATIVE SHIFT IN THE FREQUENCY OF SIMILAR TO 4.5PERCENT, WAS EFFECTED.

FACILITY: FIZ. INST. IM. LEBEDEVA, MOSCOW, USSR.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720018-6"

USSR UDC 577.472.614+577.391

GUS'KOVA, V. N., BRAGINA, A. N., ZASEDATELEV, A. A., IL'IN, B. N., KUPRIYANOVA, V. M., MASHNEVA, N. I., RODIONOVA, L. F., SUKAL'SKAYA, S. Ya., and TIKHONOVA, A. I., Leningrad Scientific Research Institute of Radiation Hygiene, Ministry of Health RSFSR

"Effect of a Mixture of Uranium Fission Products on Sanitary Conditions and Hydrobionts in Weakly Mineralized Bodies of Fresh Water"

Kiev, Gidrobiologicheskiy Zhurnal, Vol 6, No 4, Jul/Aug 70, pp 5-11

Abstract: Pollution of water with two mixtures of radionuclides (mixture I, 52% rare earth radioisotopes and 20% alkali earth elements; mixture II, 40% rare earth radioisotopes and approximately 34% zirconium 95 and niobium 95) at concentrations ranging from $2.0 \cdot 10^{-7}$ to $1.0 \cdot 10^{-5}$ curie/liter was studied. The substances did not affect the sanitary conditions or the hydrobionts studied (E. coli, protococcal algae, Infusoria, duckweed). Biochemical oxygen demand and development of saprophytic mycoflora were inhibited only at concentrations above $1.0 \cdot 10^{-3}$ curie/liter. The rate of accumulation decreased from the lowest link (microorganisms) to the highest (fish). Adverse effects of the radioisotopes on developing fish spawn varied with the stage of

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GUS'KOVA, V. N., et al, Gidrobiologicheskiy Zhurnal, Vol 6, No 4, Jul/Aug 70, pp 5-11

development. Effects were evident in the early stages of embryogenesis at a concentration of $1 \cdot 10^{-5}$ curie/liter and in later stages at $1.0 \cdot 10^{-3}$ curie/liter.

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1/2 009 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--DETERMINATION OF THE HEAT OF HYDRATION OF CEMENT -U-

AUTHOR-(04)-ZASEDATELEV, I.B., MAMEDOV, F.YU., MISHIN, G.V., KUZNECHENKO, YU.L.

COUNTRY OF INFO--USSR

SOURCE--USSR 263,221

REFERENCE--OTKRYTIYA, IZOBRET., PROM. OBRAZTSY, TOVARNYE ZNAKI 1970,

DATE PUBLISHED--04FEB70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--CEMENT, PATENT, HEAT OF HYDRATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3002/1475 STEP NO--UR/0482/70/000/000/0000/0000

CIRC ACCESSION NO--AA0128874

UNCLASSIFIED

2/2 009 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AA0128874

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE HEAT OF HYDRATION OF CEMENT WAS DETD. BY CALORIMETRIC MEASUREMENTS IN AN AUTOCLAVE, USING A DIFFERENTIAL CALORIMETER CONTG. REF. SUBSTANCES AND THE SUBSTANCES TO BE ANALYZED. TO INCREASE THE TEMP. RANGE OF THE ANAL., THE AUTOCLAVE IS FILLED WITH GAS, SUCH AS N, AT A PRESET PRESSURE AND THE TEMP. OF THE MEDIUM IN THE AUTOCLAVE IS MAINTAINED AT A LEVEL BELOW THE B. P. OF WATER AT THE PRESET PRESSURE. THE DIFFERENCE IN THE CONSUMPTION OF ELEC. ENERGY EXPENDED WHILE HEATING THE SUBSTANCE BEING ANALYZED ACCORDING TO A SET PROGRAM AND WHILE MAINTAINING THE TEMP. OF THE REF. CALORIMETRIC SUBSTANCE AT THE TEMP. OF THE SUBSTANCE UNDER ANAL. IS DETD. THE UNKNOWN QUANTITY IS DETD. FROM THE DIFFERENCE IN THESE CONSUMPTIONS. FACILITY: TEPLOPROEKT ALL UNION SCIENTIFIC RESEARCH AND DESIGN INSTITUTE.

UNCLASSIFIED

USSR

UDC 632.95

PERESEDOV, V. P., PREOBRAZHENSKAYA, E. L., and ZASEDATELEVA, G. V.

"Toxicity of New Pesticide Dibrom"

Tr. Volgogr. med. in-ta (Works of Volgograd Medical Institute), Vol 24, 1971, pp 194-197 (from Referativnyy Zhurnal -- Khimiya, Svodnyy Tom (I, L-S), No 1(II), 1973, Abstract No 1N447 by T. A. Belyayeva)

Translation: The LD_{50} amounts to 440 ± 17 and 465 ± 17 mg/kg for white mice and rats, respectively, when administered perorally. The acute poisoning of animals is accompanied by activation of the choline-reactive systems. In the case of subcutaneous application the LD_{50} is 1234 ± 70 and 1200 ± 63 mg/kg for white rats and rabbits, respectively. The cummulation coefficient of dibrom is 3.6. The new pesticide possesses anticholinesterase activity.

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USSR

UDC 632.95

PERESEDOV, V. P., PREOBRAZHENSKAYA, E. L., and ZASEDATELEVA, G. V.

"Toxicity of New Pesticide Dibrom"

Tr. Volgogr. med. in-ta (Works of Volgograd Medical Institute), Vol 24, 1971, pp 194-197 (from Referativnyy Zhurnal -- Khimiya, Svodnyy Tom (I, L-S), No 1(II), 1973, Abstract No 1N447 by T. A. Belyayeva)

Translation: The LD_{50} amounts to 440 $\pm$ 17 and 465 $\pm$ 17 mg/kg for white mice and rats, respectively, when administered perorally. The acute poisoning of animals is accompanied by activation of the choline-reactive systems. In the case of subcutaneous application the LD_{50} is 1234 $\pm$ 70 and 1200 $\pm$ 63 mg/kg for white rats and rabbits, respectively. The cummulation coefficient of dibrom is 3.6. The new pesticide possesses anticholinesterase activity.

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USSR

UDC 621.791.052:620.192.46:669.14

FEDOROV, V. G., Candidate of Technical Sciences, MAKAROV, E. L., Candidate of Technical Sciences, BELOV, YU. M., Candidate of Technical Sciences, ZASETSKIY, YU. A., Engineer, and SHUBIN, V. I. Engineer

"Conditions for Crack Development in Welding EP56 Steel"

Moscow, Svarochnoye Proizvodstvo, No 1(471), Jan 74, pp 31-32

Abstract: The development of cold cracks was investigated in joints of EP56 steel welded with EP56 electrodes after 1-14 hr of holding under different pressures. A definite relation was found between the H-content in the metal of the joint and the resistance of welded joints to the development of cracks; an index was determined which characterizes the disposition of welded EP56 steel joints to crack development at manual electric arc welding. The critical H-content in the metal of the welded joint (less than 10cm^3/100g) was established which excludes the development of cold cracks in welded EP56 steel joints, according to tests by the LTP-2 method. Joint hardness was HV 441 when welded with steam electrodes, and HV 430 when welded with electrodes annealed at maximum temperature, whereby the hardness of the base metal was HV 316. Five figures, three bibliographic references.

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UDC 550.834:519

USSR

ZASHCHINSKIY, L. A.

"Some Means of Using Wave Picture Interpretation According to Statistical Features in Seismic Exploration"

Tomsk, Izv. Tomsk. Politekhn. In-ta (News of the Tomsk Polytechnical Institute), No 201, 1972, pp 43-44 (from Referativnyy Zhurnal--Geologiya, No 5, May 73, Abstract No 5D163 by V. N. Nikitin)

Abstract: For purposes of tracing deep fractures in Central and Eastern Zabaykal it is proposed to develop new and less expensive (than deep seismic sounding or work from an "Earth" station) method of observations based on interpretation of the statistical features of microseismology. Under statistical features the following are gathered: the function of auto-correlation of any seismic trace examined as the realization of some random process; functions of mutual correlation of traces; the Fourier transformation of these functions, i.e., the spectrum of corresponding random processes; and the statistical entropy of traces. Details of the proposed method are given which, in the author's opinion, should provide a significant economical effect owing to breakdown from wave activation and simplication of observation systems. 10 bibliographic references.

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UDC: 550.383

USSR

VISHNEVSKAYA, N. L. and ZASHCHINSKIY, L. A., S. M. Kirov Polytechnical Institute, Tomsk

"Possible Disappearance of the Earth's Magnetic Field in the Inversion Process"

Tomsk, Izvestiya VUZ -- Fizika, No 10, 1972, pp 145-147

Abstract: Inversion here is described as the change in sign of the earth's magnetic field, a process which the authors deem to have been insufficiently studied. The best that can be found in the literature on this subject is a very coarse approximation of the change in the field intensity at any point on the earth's surface. The authors of the present paper suggest that a closer approximation to the actual situation is given by a linear change in the course of the inversion rather than the abrupt discontinuity offered by the coarse approximation. Using a system of wave equations derived from the Maxwell equations for an electromagnetic field in a nonideal conductor and assuming that the earth is, in a first approximation, a uniform, semiconducting isotropic medium, the authors are led to the conclusion that the magnetic field during inversion remains analogous to a dipole field that, in the

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UDC: 550.383

VISHNEVSKAYA, N. L., et al, Izvestiya VUZ — Fizika, No 10, 1972, pp 145-147

first approximation, is quasilinear with two stable states. They suggest that serious attention be given to analyzing the effects of small fluctuations of external fields on the type of motion of the earth's magnetic field source.

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1/2 020 UNCLASSIFIED PROCESSING DATE--16OCT70
TITLE--OPTICAL PROPERTIES OF PHOSPHORUS CONTAINING SOLUTIONS ACTIVATED BY SILVER -U-
AUTHOR-(03)-BELYY, M.U., ZASHIVAYLO, T.V., KUSHNIRENKO, I.YA.

COUNTRY OF INFO--USSR

SOURCE--ZH. PRIKL. SPEKTROSK. 1970, 12(2), 306-11

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS, CHEMISTRY, PHYSICS

TOPIC TAGS--SILVER, PHOSPHORUS, OPTIC PROPERTY, LUMINESCENCE SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1995/0927 STEP NO--UR/0368/70/012/002/0306/0311

CIRC ACCESSION NO--AP0116437
UNCLASSIFIED

2/2 020 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0116437

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE OPTICAL PROPERTIES OF AG ACTIVATED SOLNS. OF P COMPDS. (HPO SUB3, NAPO SUB3, H SUB3 PO SUB4, NA SUB3 PO SUB4, H SUB4 P SUB2 O SUB7, AND NA SUB4 P SUB2 O SUB7) WERE STUDIED BY MEASURING ABSORPTION AND LUMINESCENCE SPECTRA OF THE SOLNS. AT 273 AND 77DEGREESK AND AG PRIME POSITIVE ION CONCN. 10 PRIME NEGATIVE5 10 PRIME NEGATIVE3 G ION-L. AND 0.25-7.8 M P COMPD. THE ABSORPTION SPECTRA OF THE P CONTG. COMPDS. IN THE PRESENCE OF AG PRIME POSITIVE IONS ARE SIMILAR TO THOSE WITH AG HALIDES. THE POSITION OF THE MAX. IN THE SPECTRA OF VARIOUS P CONTG. COMPDS. DEPENDS MAINLY ON THE NATURE OF THE ANION GROUP. THE MAX. SHIFT TOWARD THE LONGWAVE REGION IN THE ORDER PO SUB3 PRIME NEGATIVE IS SMALLER THAN P SUB2 O SUB7 PRIME4NEGATIVE IS SMALLER THAN PO SUB4 PRIME3NEGATIVE. THE VALUE OF THE SHIFT DEPENDS ON THE CATION PRESENT, E. G., FOR THE SERIES NAPO SUB3 YIELDS NA SUB4 P SUB2 O SUB7 YIELDS NA SUB3 PO SUB4 THE SHIFT WAS SIMILAR TO 0.50 EV, AND FOR THE SERIES HPO SUB3 YIELDS H SUB4 P SUB2 O SUB7 YIELDS H SUB3 PO SUB4 IS SIMILAR TO 0.08 EV. SOLNS. OF P ACIDS AND THEIR SALTS CONTG. 10 PRIME NEGATIVE5-10 PRIME NEGATIVE3 GI ION-L. AG PRIME POSITIVE ARE NOT LUMINESCENT AT ROOM TEMP., BUT LUMINESCENT AT 90-77DEGREESK WHEN IRRADIATED WITH UV RADIATION. THE LUMINESCENCE SPECTRA HAVE 3 TYPES OF BANDS A, B, AND C, WHICH ARE ATTRIBUTED TO THE TRANSITIONS 4D PRIME10 IN EQUILIBRIUM TO 4D PRIME9 5P, 4D PRIME10 IN EQUILIBRIUM TO 4D PRIME8 5S PRIME2, AND 4D PRIME10 IN EQUILIBRIUM TO 4D PRIME9 5S, RESP.

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--04DEC70

1/3 019

TITLE--LUMINESCENCE OF SOLUTIONS OF HALIDE AND OXYGEN CONTAINING SALTS OF SILVER -U-

AUTHOR-(02)-BELYY, M.U., ZASHIVAYLO, T.V.

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, SER. FIZ. 1970, 34(3), 507-12

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY, PHYSICS

TOPIC TAGS--LUMINESCENCE SPECTRUM, SILVER COMPOUND, OXYGEN COMPOUND, HALIDE, ABSORPTION SPECTRUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

STEP NO--UR/0048/70/034/003/0507/0512

PROXY REEL/FRAME--3001/0080

CIRC ACCESSION NO--AP0125915

UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--04DEC70

2/3 019
CIRC ACCESSION NO--AP0125915
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. LUMINESCENCE AND ABSORPTION SPECTRA OF CONCD. SOLNS. OF HCL, LICL, LIBR, NABR, AND H SUB3 PO SUB4 CONTG. TRACES OF AG PRIME POSITIVE (1 TIMES 10 PRIME NEGATIVE5 -1 TIMES 10 PRIME NEGATIVE3 G ION-L.) WERE STUDIED AT 290-20DEGREESK. THE EMISSION SPECTRA WERE COMPLICATED AND CONSISTED OF SEVERAL BANDS. THE SHORT WAVELENGTH BANDS WERE SINGLET, BUT THE LONG WAVELENGTH BANDS WERE USUALLY COMPLEX. DECREASING TEMP. (TO 20.4DEGREESK) INCREASED THE COMPLEXITY OF THE LONG WAVELENGTH BAND AND REDUCED THE BAND HALF WIDTH. LOW TEMP. ALSO CAUSED SHIFTS OF THE MAX. TO SHORTER WAVELENGTH. AT HIGHER TEMPS. EMISSION SPECTRA WERE INTENSE AND DEPENDED ON THE EXCITING LIGHT WAVELENGTH. THUS, A LIGHT SOURCE OF 366 NM GAVE ONLY A LONG WAVELENGTH BAND AT SIMILAR TO 500 NM, BUT A 313-NM LIGHT SOURCE PRODUCED ANOTHER BAND AT 420 MN. AT 20.4DEGREESK LUMINESCENCE SPECTRA WERE PRACTICALLY INDEPENDENT OF THE EXCITING LIGHT WAVELENGTH. ABSORPTION SPECTRA STUDIED SHOWED SIMILAR COMPLEX STRUCTURE, ONE STRONG INTENSE SHORT WAVELENGTH BAND AND A GROUP OF LOWER INTENSITY LONG WAVELENGTH MAX. BOTH KINDS OF SPECTRA WERE DIFFERENT FOR DIFFERENT CATIONS, SO, IT IS SUGGESTED THAT CATIONS TAKE PART IN THE FORMATION OF COMPLEXES IN SOLN. THE LONG WAVELENGTH ABSORPTION OR EMISSION BANDS CAN BE ASCRIBED TO THE TRANSITIONS 4D PRIME10 (PRIME1 S SUB0) IN EQUILIBRIUM 4D PRIME9 5S (PRIME3 D SUB3,3,1; PRIME1 D SUB2) AND THE INTENSE SHORT WAVELENGTH BANDS TO 4D PRIME10 IN EQUILIBRIUM 4D PRIME9 5P TRANSITIONS. THE BANDS IN THE 300-NM REGION AND EMISSION BANDS WITH MAX. SIMILAR TO 400 NM WERE DIFFICULT TO EXPLAIN.

UNCLASSIFIED

3/3 019 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0125915

ABSTRACT/EXTRACT--THEY MAY BE DUE TO 2-ELECTRON TRANSITIONS OF THE TYPE 4D PRIME10 IN EQUILIBRIUM 4D PRIME8 5S PRIME2, WITH LOWER PROBABILITY. THE TRANSITIONS 4D PRIME10 IN EQUILIBRIUM 4D PRIME9 5P ARE ALLOWED, BUT THE 4D PRIME10 IN EQUILIBRIUM 4D PRIME9 5S AND 4D PRIME10 IN EQUILIBRIUM 4D PRIME8 5S PRIME2 TRANSITIONS ARE FORBIDDEN BY LAPORT'S RULES; THIS COULD EXPLAIN HIGHER INTENSITY OF THE SHORT WAVELENGTH. FACILITY: KIEV. GOS. UNIV. IM. SHEVCHENKO, KIEV, USSR.

UNCLASSIFIED

USSR

UDC: None

ZASHKVARA, V. V., KORSUNSKIY, M. I., RED'KIN, V. S., and CHOKIN, K. Sh.

"Interpreting Energy Loss Peaks of 30-70 ev in the Spectra of Electrons Reflected from Transitional Metals"

Leningrad, Fizika Tverdogo Tela, vol 14, No 7, 1972, pp 2182-2184

Abstract: For transitional metals, whose spectra of characteristic electron energy losses are more complex than those of such ordinary metals as Na or Al, only the initial sections of these spectra, in the 25-30 ev interval, can be explained by plasma-type losses. The interpretation of the more distant portions of the spectra, where the spectral shape is determined by factors in addition to multiple and combination plasma losses, is more difficult. In this brief communication, the authors attempt such an interpretation through the idea that the loss peaks in the spectra, which they call e-peaks, can be identified by comparing the energy position of the e-peak with the total energy required for excitation of the 4p-4d transition and of low-energy plasma oscillation, for each element of the Y-Pd series. A table of energy values for this series is given. The authors are associated with the Institute of Nuclear Physics at Alma-Ata.

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USSR

UDC: 539.292

TSVEYMAN, Ye. V.; KORSUNSKIY, M. I., Academician of the Kazakh Academy of Sciences; ZASHKVARA, V. V., and REDʹKIN, V. S.

"Auger Electron Spectra for Some Rare-Earth Metals"

Moscow, Doklady Akademii Nauk SSSR, vol 204, No 4, 1972, pp 828-830

Abstract: Because no spectra of Auger electrons for the rare-earth metals have as yet been made, the authors have developed them for elements Pr, Nd, Gd, Dy, Yb, La, and Hf in an energy range of up to 530 ev. All of the metal specimens, except the Hf, were of rolled film 0.3-0.5 mm thick. The Hf specimen was made of the powdered metal pressed and then sintered at a temperature of 1500° C in a $2 \cdot 10^{-6}$ mm Hg vacuum for several hours. The excitation of the Auger electrons was done by an electron beam of 1-2 mA and 1.6 kev directed at right angles to the specimen surface, and the secondary electrons were recorded by an electrostatic energy analyzer of the cylindrical mirror type. The spectra of these metals is plotted and a table comparing the experimentally measured and the computed peak energies is presented. The authors are associated with the Institute of Nuclear Physics, Kazakh Academy of Sciences, Alma Ata.

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USSR

TSVEYMAN, Ye. V., RED'KIN, V. S., ZASHKVARA, V. V., KORSUNSKIY, M. I., Institute of Nuclear Physics, Academy of Sciences of the Kazakh SSR, Alma-Ata

"Spectra of Characteristic Losses of Electron Energy in Gadolinium and Dysprosium"

Leningrad, Fizika Tverdogo Tela, Vol 13, No 9, Sep 71, pp 2793-2795

Abstract: The method of reflection of a primary electron beam from massive specimens is used to determine the spectrum of characteristic losses of energy in the rare-earth elements Gd and Dy. Measurements of the spectra for different primary electron energies in the 150-600-ev range were taken at scattering angles of 39 and 141° on an electrostatic β-spectrometer. Energy resolution of the instrument was 0.25 percent. The presence of oxide contaminants on the surface of the specimen was determined from the Auger peak of oxygen. It was found that when the specimens were heated to a temperature of about 1000°C in a vacuum of $5 \cdot 10^{-6}$ mm Hg, there is a noticeable reduction in the intensity of this peak (more pronounced in Gd), which shows a considerable reduction in oxygen concentra-

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TSVEYMAN, Ye. V. et al., Fizika Tverdogo Tela, Vol 13, No 9, Sep 71, pp 2793-2795

tion on the surface of the specimens. The peaks which appear on the spectra are interpreted as energy losses due to excitation of plasmons on the surface of the metal, on the surface of the oxide, in the body of the metal, at the metal-vacuum interface, etc. Two figures, bibliography of six titles.

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USSR

RED'KIN, V. S., ZASHKVARA, V. V., KORSUNSKIY, M. I., TSVEYMAN, Ye. V.,
Institute of Nuclear Physics of the Academy of Sciences Kazakh SSR, Alma-Ata

"Energy Spectrum of Auger Electrons of Osmium Up to Energies of 300 ev"

Leningrad, Fizika Tverdogo Tela, No. 5, May 71, pp 1511-1513

Abstract: The spectrum of Auger electrons of osmium was obtained up to energies of 300 ev using an electrostatic energy analyzer of the cylindrical mirror type which had been used earlier to measure the spectra of characteristic energy losses of electrons in certain metals of the transition groups. The resolution of the spectrometer was 0.3%. A graph of the spectrum shows ten fairly well defined peaks located on the line of decreasing background intensity of the inelastically scattered electrons. It was established that the energy position of the observed peaks does not change with a change in the energy of the primary electron beam from 1 to 2.4 kev, thus making it possible to interpret the majority of the peaks as excitation of Auger transitions. A triplet of low intensity peaks in the energy range 260-240 ev is interpreted as *KLL* Auger transitions excited in residual carbon contamination of the surface of the sample. A group of

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RED'KIN, V. S., et al, Fizika tverdogo tela, No. 5, May 71, pp 1511-1513

peaks in the osmium spectrum with energies 153, 158, and 167 ev is interpreted as belonging to the *NNN* series of transitions. A table is given showing the experimental values of the energy of transitions of the *NNN* series increased by the magnitude of the work function for an electron from osmium (~5 ev), and these values are compared with energies calculated on the basis of tables of the energy levels in osmium. Peaks observed at 215 and 228 ev are interpreted as possible $N_V N_{VI} O_V$ (221 ev) and $N_{IV} N_{VI} O_V$ (238 ev). It was difficult to identify low-energy peaks at 9 and 21 ev, and these require additional study.

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USSR

SOTNIKOV, V. G., RED'KIN, V. S., ZASHKVARA, V. V., CHAYKOVSKIY, E. F., KORSUNSKIY, M. I.

"Decrease in Carbon Concentration in Surface Layers of Mo_2C and W_2C"

Leningrad, Fizika Tverdogo Tela, No. 4, Apr 71, pp 1058-1061

Abstract: The characteristic energy loss spectrum of Mo_2C and W_2C samples was studied by the method of reflecting a primary beam of electrons of 800 ev energy for two scattering angles 39 and 141°. The samples were made by high-temperature heating of polycrystalline strips of pure Mo and W in benzene vapors. In taking the spectra the samples were heated up to 800, 1250, 1600, 1800, and 2000°C in a vacuum of 10^{-6} torr. It was established that an increased concentration of hydrogen is contained in the surface layer in the initial samples. In the process of high-temperature heating of the samples there is observed desorption of carbon from the surface layer, with the result that the concentration composition of the surface layer approaches the pure metal (Mo, W). When the temperature is raised to 2000°C and the sample is held for one and one-half hours at this temperature, the desorption of carbon from the surface layer continues until the stability of

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SOTNIKOV, V. G., et al, Fizika tverdogo tela, No. 4, Apr 71, pp 1058-1061

the characteristic energy loss spectrum obtained for the scattering angle of 141° indicates the relative stability of the concentration content of carbon in deep layers of the samples.

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Nuclear Physics

UDC 537.533.331

USSR

ZASHKVARA, V. V., KORSUNSKIY, M. I., RED'KIN, V. S., and LAVROV, V. P., Institute of Nuclear Physics of the Academy of Sciences Kazakh SSR, Alma-Ata

"Ion-Optical Properties of an Electrostatic Energy Analyzer for Beams of Charged Particles With Focusing of the Ring-Axis Type"

Leningrad, Zhurnal Tekhnicheskoy Fiziki, No 12, Dec 70, pp 2591-2592

Abstract: A calculation of the ion-optical characteristics of a cylindrical analyzer providing ring-axis focusing for various angles of entry of the beam into the region of the field is presented. The property of cylindrical analyzer to depict a thin ring source placed on the surface of the inner cylinder at a point on the axis of symmetry is denoted by the term "focusing of the ring-axis type." Formulas are given for the relative focus distance, the coefficient of relative linear dispersion with respect to energy, the quadratic angular aberration coefficient, and the cubic angular aberration coefficient. Graphs of these functions are given. They show that focusing of the ring-axis type of the first order with respect to angular divergence of the beam in an electrostatic analyzer with a cyclindrical field can be achieved over a wide range of angles of entry of the beam of charged particles.

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ZASHKVARA, V. V., et al, Zhurnal Tekhnicheskoy Fiziki, No 12, Dec 70, pp 2591-2592

The angle of entry of 39° is of particular interest, since under these conditions the quadratic angular aberration is equal to zero and close to the minimum value of the cubic angular aberration.

1/2 028 UNCLASSIFIED PROCESSING DATE--27NOV70

TITLE--SPECTRA OF CHARACTERISTIC ELECTRON LOSSES IN RUTHENIUM, RHODIUM, AND PALLADIUM -U-

AUTHOR-(03)-ZASHKVARA, V.V., KORSUNSKY, M.I., REDKON, V.S.

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2/2 028 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0129164

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CHARACTERISTIC ELECTRON ENERGY LOSS SPECTRA OF RU, RH, AND PD WERE PLOTTED; EACH SHOWED SEVERAL PEAKS IN THE RANGE 5-80 EV. THE FIRST TWO (LARGEST) ENERGY LOSSES WERE IDENTIFIED AS BEING OF A PLASMA NATURE. ON PASSING FROM A SCATTERING ANGLE OF 40 TO 140DEGREES, THE POSITION OF THE FIRST LARGE PEAK REMAINED CONSTANT, BUT THAT OF THE SECOND MOVED IN THE HIGH ENERGY DIRECTION. PEAKS IN THE NEIGHBOURHOOD OF 50 EV WERE ATRRIBUTED TO IONIZATION AND OTHERS AT 60 EV TO TWO FOLD PLASMA EXCITATION.

UNCLASSIFIED

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Acc. Nr: AP0048299 Abstracting Service: CHEMICAL ABST. 5/70 Ref. Code: 4R0181

94384q Spectrum of electron characteristic energy losses in osmium. Zashkvara, V. V.; Korsunskii, M. I.; Larin, M. P.; Red'kin, V. S.; Musyagin, V. E.; Kil'dyarov, M. A.; Chokin, K. Sh. (Inst. Vad. Fiz., Alma-Ata, USSR). *Fiz. Tverd. Tela* 1970, 12(1), 294–6 (Russ). The spectrum was obtained of characteristic energy losses of electrons in Os. The spectrum was obtained by reflecting a beam of electrons with energy 0.6–1.4 keV from a plane surface of a massive specimen. The energy losses detd. from the max. of the peaks are 11.4, 20.8, 46.5, and 58 eV for a scattering angle of 141°, and 11.3, 24.5, 45.2, and 57.4 eV for a scattering angle of 39°. The peak of the 1st loss is interpreted as the loss of energy for excitation of surface plasma oscillations, and the 2nd loss, as the energy loss for excitation of vol. plasma oscillations in Os.
A. Libackyj

IB

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REEL/FRAME 19792021

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USSR

ZASHKVARA, V. V., KORSUNSKIY, M. I., RED'KIN, V. S., Institute of Nuclear Physics, Academy of Sciences Kazakh SSR, Alma-Ata.

"Electron Characteristic Energy Loss Spectra In Ru, Rh, and Pd"

Leningrad, Fizika Tverdogo Tela, Vol 12, No 4, April 1970, pp 1270-1271

Abstract: A previous work by these three authors plus V. Ye. Masyagin (FTT, 11, 3667, 1969) discusses the electron characteristic energy loss spectra in Y, Zr, Nb, and Mo obtained by the method of reflection of the primary beam of electrons with energies on the order of 1 kev for two scattering angles (39 and 141°). In the present work an analogous investigation is conducted for the metals Ru, Rh, and Pd. The results obtained, in combination with the results of the previous work, make it possible to obtain a representation of the distinctive features in the spectra of the electron characteristic energy loss in metals of all series of the second transition group (with the exception of Tc) observed for two scattering angles (39 and 141°). The method of preparing the specimens of Ru, Rh, and Pd is described. The authors thank Ya. Ye. Genkin, M. P. Larin, and V. Ye. Masyagin for assistance in fulfillment of their work. 1 graph, 1 table, 5 ref. Received by the editors 12 December 1969.

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UDC:

USSR

ZASHKVARA, V. V., KORSUNSKIY, M. I., LARIN, M. P., RED'KIN, V. S., MASYAGIN, V. YE., KUL'DIYAROV, M. A., and CHOKIN, K. SH., Institute of Nuclear Physics of the Kazakh Academy of Sciences, Alma-Ata (Institut yadernoy fiziki AN Kaz SSR, Alma-Ata)

"Spectrum of Characteristic Energy Losses of Electrons in Osmium"

Leningrad, Fizika Tverdogo Tela, Vol 12, No 1, January 1970, pp 294-296

Abstract: The authors obtained a spectrum of characteristic energy losses of electrons in osmium. This is the first time this has been done and should contribute information about the third transition metal group. The spectrum was produced by reflecting an electron beam with an energy of 0.6-1.4 kev off a flat surface of a massive specimen. Energy analysis of the scattered electrons was carried out by using an electrostatic beta-spectrometer with a cylindrical field. The resolving power of the spectrometer was 0.2%. The spectrum was obtained for two different angles of scattering for the primary beam of electrons. In the first case the beam of primary electrons falls normally to the specimen surface and electrons which had been scattered at a 141° angle in the specimen enter the beta-spectrometer. In the second case the angle between the direction of the primary beam and the specimen surface is 129°30' with electrons analyzed which had been scattered at 39°. The osmium specimen was 0.3 mm thick and was made from low-dispersion powdered osmium pressed and subsequently cintered above 2000°C in a 2·10-6 torr vacuum for several hours. The spectrum was produced without disturbing the vacuum

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ZASHKVARA, V. V., et al., Fizika Tverdogo Tela, Vol 12, No 1, January 1970, pp 294-296

at the above temperature, with registration of electrons scattered at a 39° angle. It was shown that the osmium spectrum did not change with a fall in temperature down to 1400°C. The position of the specimen was changed for taking a spectrum at an angle of 141°. This required disturbing the vacuum. The latter spectrum was produced at a specimen temperature of 1700°C in a $2 \cdot 10^{-6}$ torr vacuum. A graph is given for the two spectra. Energy losses in electron-volts as determined from curve peaks are as follows: (141° angle of scattering) 11.4, 29.8, 46.5, 58; and (39° angle of scattering) 11.3, 24.5, 45.2, 57.4. The energy position of the first loss does not change with the angle of scattering. The ratio of the height of the first peak to the height of the second loss peak decreases as the angle of scattering increases and with increased primary beam energy. At a specimen temperature below 1300°C, the height of the first loss peak falls significantly and reaches 9.7 ev. This may be interpreted as energy lost in exciting surface plasma oscillation. At the same time, the energy loss does not coincide with theory. A significant discreptancy (on the order of 5 ev) exists in the energy position of the second loss peak. This is probably conditioned by excitation of volume plasma oscillation in the osmium for 141° and 39° scattering angles. Energy calculated for

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ZASHKVARA, V. V., et al., Fizika Tverdogo Tela, Vol 12, No 1, January 1970, pp 294-296

a volumetric plasmon using the Langmuir formula with the supposition that all eight s and d are free and form a homogeneous electron gas yields 28.6 ev. This value does not correspond to the second peak energy position obtained in this study. The origins of the remaining peaks in the osmium spectrum are also unclear.

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USSR

ZASHKVARA, V. V., TSVEYMAN, Ye. V., KORSUNSKIY, M. I., RED'KIN, V. S.

"Spectra of Characteristic Energy Losses for Electrons Reflected From Surfaces of La, Ce, Pr, and Nd"

Leningrad, Fizika Tverdogo Tela, Vol 14, No 6, Jun 72, pp 1812-1814

Abstract: Electron reflection spectra are studied for La, Ce, Pr, and Nd. The specimens were heated in a vacuum to temperatures close to their melting point to clean the oxides from the surface. Spectra of characteristic energy losses are given for a primary electron energy of 300 ev and specimen temperature of 850°C in the range of energy losses of 0-50 ev. The results are compared with inelastic scattering spectra obtained previously for Gd and Dy. It is found that the La spectrum is similar to that of Gd, but with a more complex structure at energies above 15 ev. The spectra of the other three lanthanons are similar to that of Dy. The La spectrum shows maxima at 5.3, 10.2, and 22.1 ev which are not observed in the spectra of Ce, Pr, and Nd. Comparison with the analogous spectrum for barium indicates that the most intense peaks, observed at 8-9 ev, may be the result of losses to excitation of volumetric plasma oscillations in the metals. Interpretation of the remainder of the spectra is less clear.

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USSR

UDC: 539.5

MARUSIY, O. I., ZASIMCHUK, Ye. E., Kiev

"Study of the Processes of Softening During Creep of Molybdenum and its Alloys"

Kiev, Problemy Prochnosti, No 8, Aug 73, pp 34-37.

Abstract: Structural changes during creep of technical molybdenum, annealed before testing at temperatures over 1200° C, and its alloys with titanium and zirconium are studied. It is established that the acceleration of deformation (onset of the third stage of creep) is related to recrystallization of local areas of the material tested. Recrystallization is stimulated during the process of creep by deformation and is not related to the initial structure of the molybdenum and its alloys. The mechanism of formation of recrystallization zones in the materials with developed substructure is studied. 5 figures, 10 biblio. refs.

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USSR UDC 539.22-548.735.6

ZASIMCHUK, Ye. E., ISAYCHEV, V. I.

"Textures of Deformation, Primary and Secondary Recrystallization in High-Purity Nickel"

Sverdlovsk, Fizika Metallov i Metallovedeniye, Vol 34, No 1, Jul 72, pp 205-208.

Abstract: The authors used nickel specimens produced by cathode-ray zone melting. In contrast to the results of other authors, the present authors noted secondary recrystallization with a clear (112) [$1\bar{1}1$] texture. The authors did not observe anomalous grain enlargement with its related texture in electrolytic nickel of 99.99% purity, additionally purified by ordinary vacuum remelting, or in nickel containing up to 1 at.% molybdenum and titanium. The authors note that they observed secondary recrystallization, the surface of the foil of their specimens corresponding to the (112) plane of the anomalous grains. This orientation is also present in primarily recrystallized and deformed nickel and is quite resistant to long-term application of high temperatures.

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USSR

UDC 620.172.2

ZASIMCHUK, Ye. E., KRIVENYUK, V. V., Kiev

"Regularities of Creep and Long-Term Rupture of Molybdenum and Its Alloys"

Kiev, Problemy Prochnosti, No 6, 1972, pp 33-37.

Abstract: An experimental study is presented of the regularities of creep and long-term rupture of slightly alloyed molybdenum-base alloys in comparison with molybdenum of technical purity. The composition of the materials studied was: technical molybdenum, 99.97% pure; TsM-2A, 0.075% Zr, 0.18% Ti, 0.003% C, 0.004% O_2, 0.004% N_2, 0.003% H_2; TsM, 0.14% Zr, remainder of TsM and TsM-2A -- molybdenum. Experimental results of the study of long term strength and deformation rate are presented, as well as descriptions of structural changes during creep of the specimens. The significance of diffusion softening processes (polygonization and grain growth) for deformation rate during creep is determined. The mechanism of the influence of microalloying on creep characteristics and long-term rupture characteristics is studied.

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USSR

UDC 539.26+548.735.4

ZASIMCHUK, Ye. E., and MAKSIMENKO, Ye. A.

"Polygonization Processes in Deformed Single Crystals of Refractory Metals and Their Alloys With Rhenium"

Monokristally Tugoplavkikh i Redkikh Metallov [Single Crystals of Refractory and Rare Metals -- Collection of Works], Nauka Press, 1971, pp 148-153

Translation: Micro-x-ray study of polygonization is performed in single crystals of tungsten and molybdenum and their alloys with rhenium, rolled to 7% in the (100) plane. It is demonstrated that the influence of 27 wt.% rhenium on the course of polygonization in molybdenum can be reduced to a change in the type of polygonization structure, leading to recrystallization of the polygonized alloy under those conditions when the pure metal is not recrystallized and retains the initial orientation of the single crystal upon annealing. The reasons for this phenomenon are discussed. 2 Tables; 3 Figures; 10 Bibliographic References.

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USSR UDC 669.276-172-179

ZASIMCHUK, YE. E., and MAKSIMENKO, YE. A., Institute of Metal Physics, Academy of Sciences UkrSSR

"Kinetics of Subgrain Growth in the Polygonization of Deformed Tungsten"

Kiev, Metallofizika, No 31, 1970, pp 66-70

Translation: Plane-oriented tungsten single crystals (100) after deformation by directional rolling [110] and polygonization annealing were studied by metallographic and x-ray micrographic methods with the use of a double-crystal spectrometer. Curves of distribution of subgrains according to sizes were plotted, from which it is evident that all subgrains become greatly enlarged as the time of isothermal annealing increases, while their number decreases. An assumption is made that subgrains grow as a result of their coupled fusion. An improved structure of subgrains during the annealing process as a result of the redistribution of chaotically distributed dislocations is noted.

Bibliography: 13 entries, 4 illustrations, 1 tables.

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UDC 548.53:669.27

USSR

ZASIMCHUK, YE. E., and ISAYCHEV, V. I., Institute of Metal Physics, Academy of Sciences, UkrSSR

"Kinetics of Primary, Secondary, and Collective Recrystallization in Tungsten Wire"

Kiev, Metallofizika, No 31, 1970, pp 59-66

Translation: An x-ray diffraction and metallographic study was made of the kinetics and texture of primary, secondary, and collective recrystallization in a tungsten wire of a varying composition in the temperature interval 900°-2300°C. The effect of the wire composition on the type of the process of grain growth occurring in the wire in the temperature interval 1900°-2300°C after completion of primary recrystallization was detected. It is shown that the kinetic relationships of the studied processes in the wire are similar to those observed in foil and in large samples. The temperature dependence of the rates of grain boundary migration is characterized by a reduction in the temperature rate coefficient as the temperature interval of the process shifts toward higher temperatures. For collective and secondary recrystallization, in practice, this coefficient coincides with the energy of diffusion

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ZASIMCHUK, YE. E., and ISAYCHEV, V. I., Metallofizika, No 31, 1970, pp 59-66

activation along the grain boundaries, whereas for primary recrystallization it is much higher, rising as the amount of impurity in the wire increases. It is shown that the axial texture of all the studied wire varieties in the deformed and recrystallized state can be described by the direction [110]. In secondary recrystallization, along with this orientation, the texture component is manifested [211].

Bibliography: 27 entries, 7 illustrations, 1 table.

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USSR

ZASIMOV, V. S., KUZ'MIN, R. N., and FIROV, A. I., Moscow State University imeni M. V. Lomonosov

UDC 548.0:539.171

"Observation of the Diffraction of Resonant Gamma-Quanta From an FeNi Single Crystal"

Moscow, Kristallografiya, Vol 17, No 4, 1972, pp 864-865

Abstract: Investigation results are presented on the diffraction of resonant gamma-quanta from an FeNi (50 at%Fe) single crystal cut so that its surface corresponded to the (111) crystallographic surface. The gamma-quanta, obtained on a Mössbauer diffractometer, had a natural content of ^{57}Fe isotope. The diffraction maxima and the Mössbauer spectra obtained by scattering of gamma-radiation with an energy of 14.4 kev ($\lambda \sim 0.86$ Å) are discussed. The energy spectrum for the (111) reflex ($\theta_1 = 12°$) shows a characteristic dip; the Mössbauer spectrum for the (222) reflex ($\theta_2 = 24°30'$) has a smaller dip. The increase in the order of reflection is equivalent to the decrease of the effective thickness of the crystal, producing a reduction in the resonance absorption and a relative intensity increase of nuclear scattering. Two figures, fourteen bibliographic references.

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USSR

ZASKO, F. A., and SHEYNKIN, M. Z.

"Welding Technology of Pipes of Steel Kh60"

Moscow, Stroitel'stvo Truboprovodov, No 1, Jan 71, pp 29-30

Abstract: An x-ray analysis of cracks in welded pipelines of steel Kh60, 1016 mm in diam and 12-14 mm wall, revealed that the cracks originated along the fusing line of the root layer of the weld bead and spreaded on the weld metal of the following layers, but did not propagate on the base metal. The use of a described technique in welding Kh60 steel pipes of 1016 mm in diameter eliminates the generation of cracks. Accordingly, the centering of the pipe buttwelds is carried out by means of hydraulic centering devices which secure the pipe edges until completion of the root layer weld, and the pipe edges are preheated up to 100-150°C. An illustrated propane preheater with 12 burners along the pipe perimeter provides a uniform heating.

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USSR

UDC 536.2

AYZEN, A. M., ZASLAVSKAYA I. G., YAMPOL'SKIY, N. G., All-Union Scientific Research and Design and Construction Institute of the Petroleum Processing and Petrochemical Industry

"Concerning the Application of Perturbation Theory in Solving Three-Dimensional Nonlinear Problems of Thermal Conductivity"

Moscow, Teplofizika Vysokikh Temperatur, No 6, Nov/Dec 70, pp 1249-1255

Abstract: The solution of three-dimensional problems and thermal conductivity in which the volumetric heat capacity and the coefficient of heat conductivity are both dependent on temperature is considered. The heat capacity and the coefficient of heat conductivity are approximated by expressions which more exactly agree with experiment: $C(t) = C_1(1 + At + Bt^2)$,

$\lambda(t) = \lambda_1(1 + A_1 t + B_1 t^2)$.

By making certain transformations, the nonlinear differential equation of heat conductivity is reduced to a nonlinear equation containing a single small parameter, in terms of powers of which the asymptotic solution of the equation is found with an accuracy up to terms proportional to the cube of the small

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USSR

AYZEN, A. M., et al., Teplofizika Vysokikh Temperatur, No 6, Nov/Dec 70, pp 1249-1255

parameter. The technique for selecting the small parameter depends on the region in which the solution of the nonlinear problem is examined, whether high or low temperature. In the high-temperature region the smallness of the coefficients for t and t^2 is associated with the fact that lattice fluctuations determining the first term in the expression for heat conductivity make the basic contribution to the heat conductivity of metals; if this condition is not satisfied, the region can be broken up into sufficiently small temperature changes. By a combined application of the perturbation method and the method of finite integral transformations, the three-dimensional problem is reduced to a system of ordinary linear differential equations with a solution equivalent to the solution of the initial problem.

USSR UDC 669.14.018.8:620.18

ZASLAVSKAYA, L. V., LASHKO, N. F., BELYAKOV, L. N., ANDREYEVA, F. S., and KAGAN, Ye. S., All-Union Scientific Research Institute of Aviation Materials

"Redistribution of Nickel and Chromium in $\alpha \rightarrow \gamma$-Transformation in Stainless Steels Containing Chromium and Nickel"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 2, 1973, pp 39-42

Abstract: A study was made of Cr, Ni, and Mo redistribution when tempering in the interval of partial $\alpha \rightarrow \gamma$-transformation in Kh11N9 and Kh11N9M2 stainless steels, containing nickel and chromium and serving as base of martensitic aging stainless steels. The Kh11N9 steel contained 0.012% C, 0.022% Mn, 0.07% Si, 0.68% Cr, and 9.2% Ni; the Kh11N9M2 steel was additionally alloyed with 1.9% Mo. At heating rates $\leq$ 50 deg/sec, $\alpha \rightarrow \gamma$-transformation goes with Cr and Ni redistribution between α-and γ-phases. At partial $\alpha \rightarrow \gamma$-transformation, austenite con-

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ZASLAVSKAYA, L. V., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 2, 1973, pp 39-42

tains more Cr, Ni, and probably also more Mo than the α-phase. The austenite concentration with Cr, Ni, and with other elements in the $\alpha \rightarrow \gamma$-transformation process in Kh11N9-type steels is apparently one of the sources of austenite stabilization of these steels in the tempering process at $\alpha \rightarrow \gamma$-transformation temperature. Two figures, one table, twelve bibliographic references.

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USSR UDC 669.14.018.2

TARANTOVA, A. S., PEVZNER, L. M., LOMBERG, B. S., SOLOV'YEVA, G. G., and ZASLAVSKAYA, L. V.

"Martensite-Aged Steels with High Durability and Plasticity"

Moscow, Metallobeveniye i Termicheskaya Obrabotka Metallov, No 8, 1970, pp 70-74

Abstract: The purpose of the research described by this paper was to obtain martensite-aged steels based on the Fe-Ni-Co-Mo system with a durability of 240-280 kg/mm^2, and to study their structure, phase state, and mechanical characteristics. Alloys with 12-15% Ni, 13-17% Co, and 5-11% Mo with C 0.03% were checked. A more detailed study of these alloys was made on two levles of durability values. The chemical compositions and durabilities of the two are given in a table along with a third, the so-called Vascomax-350, for the sake of comparison.

The first two alloys have no added titanium or aluminum, as opposed to ordinary martensite-aged alloys, to avoid the formation of embrittling carbonitrides; the third contains 1.6-2% titanium. To obtain high durability with maximum plasticity, the steels had to be made with pure furnace charges. Vacuum induction melting

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TARANTOVA, A. S., et al., Metallobeveniye Termicheskaya Obrabotka Metallov, No 8, 1970, pp 70-74

in laboratory furnaces with reduction through cerium and calcium were used. The weight of the melt was 50 kg. A second table gives details of the thermal processing applied to the castings after forging and water-cooling. In addition to this, the castings were analyzed chemically and by X-ray analysis. The results of the tests for the three melts as well as for standard brands ON18K9M5T and EI643 are given in a third table.

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USSR UDC 532.6:547.42

GLUZMAN, M. Kh., DASHEVSKAYA, B. I., and ZASLAVSKAYA, R. G., Khar'kov Scientific-Research and Chemical-Pharmaceutical Institute

"A Synthesis and Study of the Surfactant Properties of Monoethylpolyethyleneglycol Esters of Aliphatic Acids"

Leningrad, Zhurnal Prikladnoy Khimii, Vol XLIV, No 1, Jan 71, pp 167-171

Abstract: The ethoxylated derivatives of certain classes of organic compounds are very valuable in that the length of the hydrophilic portion of the molecule can be varied to produce desired properties, the substances are nontoxic, noncorrosive and chemically inert, and the raw material is inexpensive. The present study was made to develop a method of synthesis for an homologous series of fatty acid esters, and to determine their properties.

Various fatty acids (valeric, caproic, enanthic, capric, lauric, palmitic, stearic and oleic) were esterified with monoethylpolyethyleneglycols, various degrees of polymerization (10, 20, 30 and 40) of the samples being studied to assure a basis for comparison of properties. It was found that the surface-active properties of these monoethyleneglycol esters, in the case of those whose hydrophobic portion contains 12, 16 and 18 carbon atoms,

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GLUZMAN, M. Kh., et al., Zhurnal Prikladnoy Khimii, Vol XLIV, No 1, Jan 71, pp 167-171

are not subject to the Traube rule, since they are crosslinked with water to form reticular aggregates. Data obtained on the hydrophilic-lipophilic balance indicate that most of these compounds might be used as emulsifiers and as solubilizers.

USSR UDC: 8.74

ZASLAVSKIY, B. G.

"Stochastic Model of the Growth of a Cellular Population"

V sb. Probl. kibernetiki (Problems of Cybernetics--collection of works), vyp. 25, Moscow, "Nauka", 1972, pp 139-151 (from RZh-Kibernetika, No 6, Jun 72, Abstract No 6V601)

Translation: The paper deals with a model of the growth of a cellular population with regard to the phases of the mytotic cycle. An analytical solution is found for equations which describe mathematical expectation and variance as functions of time. Author's abstract.

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USSR

UDC: 533.6.011.72 (2)

DORONIN, G. S., STUPNIKOV, V. P., ROMAN'KOV, V. V., BELENKIY, V. Ya., ZASLAVSKIY, B. I., and BATSANOV, S. S.

"Compression of Plexiglass Cylinders by Glancing Detonation Waves"

Leningrad, Zhurnal tekhnicheskoy fiziki, No 5, 1973, pp 1059-1064

Abstract: This article pertains to the physical-chemical investigation of materials, subject to dynamic compression, which are kept in cylindrical containers under glancing detonation waves. Research of this type is now being intensively pursued. The purpose of this paper is to investigate the irregular reflection of shock waves in plexiglass cylinders under compression by glancing detonations, by a method suggested in an earlier article (G. A. Adadurov, et al, Fiz. gor. vzryva, vol 3, No 2, p 281, 1967). This method proposed using, as a model of the cylinder, plexiglass cylinders observed by high-speed photography to investigate the picture of the air flow through the fine, scintillating gaps between the plates composing the cylinders. A description is given of the explosive material used in the experiments and, briefly, of the experimental equipment. Results of the experiments are given in the form of curves of the change in velocity of the shock waves and

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UDC: 533.6.011.72

DORONIN, G. S., et al, Zhurnal tekhnicheskoy fiziki, No 5, 1973, pp 1059-1064

the relative dimensions of the main shock wave as functions of the cylinder length. A description of the picture of the phenomenon is given together with an explanation of the results as shown by the curves.

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USSR

UDC: 681.327

BLAZHKO, S. S., ZASLAVSKIY, R. I., KALAYDA, Ye. I., MASHBITS, R. Ya., KUKHARCHUK, A. G., NIKITIN, A. I., Institute of Cybernetics of the Academy of Sciences of the UkrSSR, and Electronic Computer and Control Computer Plant

"A Device for Data Transmission From the Input Unit to the Memory in a Digital Computer"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 30, Oct 71, Author's Certificate No 317056, Division G, filed 27 Jun 69, published 7 Oct 71, p 172

Translation: This Author's Certificate introduces a device for data transmission from the input unit to the memory in a digital computer. The device contains a data address counter and a symbol register. As a distinguishing feature of the patent, program processing of words is simplified by including a balance circuit, a word symbol counter, a pattern address counter, an initial pattern address register, a space symbol decoder, and a zero decoder for the word symbol counter. The first output of the balance circuit is connected to the input of the data address counter, the second output is connected to the input of

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BLAZHKO, S. S. et al, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 30, Oct 71

the word symbol counter, and the third output is connected to one input of the pattern address counter. Connected to the other input of the pattern address counter is the output of the initial pattern address register. The first input of the balance circuit is connected to the output of the space symbol decoder, whose input is connected to the output of the symbol register. The second input of the balance circuit is connected to the output of the word symbol counter, and the third input of the balance circuit is connected to the output of the zero decoder for the word symbol counter. The zero decoder input is connected to the output of the word symbol counter.

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1/2 023 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--CLINICAL SYMPTOMATICS, DIAGNOSIS AND TREATMENT OF PROTRACTED SEPTIC ENDOCARDITIS ON THE PRESENT DAY LEVEL -U-

AUTHOR--ZASLAVSKAYA, R.M.

COUNTRY OF INFO--USSR

SOURCE--TERAPEVTICHESKIY ARKHIV, 1970, VOL 42, NR 5, PP 51-55

DATE PUBLISHED--------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--HEART DISEASE, PATHOGENESIS, RHEUMATIC DISEASE, ATHEROSCLEROSIS, STREPTOCOCCUS, STAPHYLOCOCCUS, BACILLUS, CORTICOSTEROID

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0014 STEP NO--UR/0504/70/042/005/0051/0055

CIRC ACCESSION NO--AP0120714

UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0120714

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ON THE BASIS OF THE ANALYSIS OF LITERATURE DATA AND PERSONAL EXPERIENCE THE AUTHOR EMPHASIZES THE MAIN ASPECTS CONCERNING THE PECULIARITIES OF THE CLINICAL PICTURE, DIAGNOSIS AND TREATMENT OF PROTRACTED SEPTIC ENDOCARDITIS ON THE PRESENT DAY LEVEL. THE AUTHOR POINTS OUT THE ABSENCE OF THE CLASSICAL COMPLEX OF ALL KNOWN SYMPTOMS OF THIS DISEASE, IRRAGULARITY IN THE MANIFESTITATION OF A NUMBER O PHENOMENA, POSSIBILITY OF VARIOUS COMBINATIONS OF THE MOST IMPORTANT SYMPTOMS OF THE DISEASE WITH THEIR DYNAMICS. SPECIAL ATTENTION IS PAID TO THE ROLE OF ALLERGY IN THE PATHOGENESIS AND CLINICAL PICTURE OF PRESENT DAY SEPTIC ENDOCARDITIS. DATA IS GIVEN TESTIFYING TO A GROWTH OF A NUMBER OF PATIENTS WITH PROTRACTED SEPTIC ENDOCARDITIS WHICH DEVELOPED INDEPENDENT OF SUSTAINED RHEUMATISM IN AGED AND SENILE PATIENTS AGAINST THE BACKGROUD OF ATHEROSCLEROSIS, UROSEPSIS AND OTHER GRAVE DISEASES THAT RATHER OFTEN DISTORTED THE PICTURE OF CLASSICAL MANIFESTATIONS OF ENDOCARDITIS. CASES OF BACTEREMIA WITH HEMOLYTIC, NONHEMOLYTIC STREPTOCOCCI, ALBUS, AUREUS HEMOLYTIC STAPHYLOCOCCI, PNEUMOCOCCUS, ENTEROCOCCUS, B. COLI, ETC. BECAME MORE COMMON. THE AUTHOR UNDERLINES THERAPEUTIC DIFFICULTIES IN TREATING PATIENTS WITH SEPTIC ENDOCARDITIS, NECESSITY IN USING ANTIBIOTICS OF A WIDE SPECTRUM OF ACTION WITH DUE ACCOUNT OF ANTIBIOTICOGRAMS, AND STEROID HORMONES IN SOME CASES. FACILITY: TSENTRAL'NAYA BOL'NITSA MINISTERSTVA ZDRAVOOKHRANENIYA RSFSR, MOSCOW.

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USSR UDC 621.316.019.3

ZASLAVSKAYA, T. A.

"Problem of Reliability of Municipal Electric Power Supply Networks"

V sb. Tekhn. progress v elektrosnabzh. gorodov (Technical Progress in Electric Power Supply of the Cities -- collection of works), Leningrad, Energiya Press, 1970, pp 88-92 (from RZh-Elektrotekhnika i Energetika, No 4, Apr 71, Abstract No 4 Ye309)

Translation: The mean emergency idle time with respect to frequency, duration and failure to deliver electric power in 35-110 kilovolt municipal electric power networks are analyzed. The causes of failures on the electric power transmission lines and substations are also analyzed. The probability and duration of failures of the electric power supply are determined according to statistical operating data. There is 1 illustration, 5 tables and a 4-entry bibliography. [KhIIKS]
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CSO: 1860-W

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1/2 028 UNCLASSIFIED PROCESSING DATE--04DEC70
TITLE--ELECTROOPTICAL LIGHT MODULATORS BASED ON A FABRY PEROT ETALON -U-

AUTHOR-(02)-ADRIANOVA, I.I., ZASLAVSKAYA, V.R.

COUNTRY OF INFO--USSR

SOURCE--OPT.MEKH. PROM. 1970, 37(2), 21-4

DATE PUBLISHED-------70

SUBJECT AREAS--PHYSICS

TOPIC TAGS--ELECTROOPTIC DME, LIGHT MODULATOR, FABRY PEROT INTERFEROMETER, HELIUM NEON LASER, CRYSTAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY FICHE NO----FD70/605007/E02 STEP NO--UR/0237/70/037/002/0021/0024

CIRC ACCESSION NO--AP0139897

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720018-6"

2/2 028 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0139897
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CHARACTERISTIC OF A FABRY PEROT ETALON WAS STUDIED BY USING A HE-NE LASER AS THE SOURCE OF LIGHT. DIFFERENT VOLTAGES WERE APPLIED TO THE CRYSTAL AND A TRANSPARENCY VS V PLOT WAS MADE. ON THE BASIS OF THE ELECTROOPTIC EFFECT IN THE CRYSTAL, A FABRY PEROT INTERFEROMETER COULD BE UTILIZED FOR THE CONSTRUCTION OF A LIGHT MODULATOR.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/01/2001 CIA-RDP86-00513R002203720018-6"

Acc. Nr: AP0048040 Abstracting Service: INTERNAT. AEROSPACE ABST Ref. Code: 5-70 UR0051

A70-24260 # Study of the modulation of the emission of an He-Ne laser with a three-mirror cavity by means of the electrooptical effect (Issledovanie modulatsii izlucheniia He-Ne lazera s trekhzerkal'nym rezonatorom posredstvom elektrooptcheskogo effekta). V. R. Zaslavskaia. *Optika i Spektroskopiia*, vol. 28, Jan. 1970, p. 93-95. In Russian.

Results of a study of the possibility of using a three-mirror optical cavity to modulate the emission of an He-Ne laser at the 632.8-nm wavelength. The proposed scheme involves the use of a spherical mirror, a plane mirror, and an additional spherical mirror. It is shown that in the proposed scheme modulation of gas lasers can be achieved at considerably high frequencies (at least up to 5 MHz, with small control voltages of about 40 V) by an appropriate geometry of the coupled resonators. The stability of operation of the system is entirely determined by the rigidity of the structure of the system and by its thermal stability.

A.B.K.

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REEL/FRAME
19791722

1/2 023 UNCLASSIFIED PROCESSING DATE--23OCT70
TITLE--STUDY OF THE FLUTTER OF THE BLADES OF AXIAL COMPRESSORS USING THE DISCRETE PHASE METHOD -U-
AUTHOR-(02)-ZASLAVSKIY, A.G., SHIPOV, R.A.

COUNTRY OF INFO--USSR

SOURCE--LENINGRAD, ENERGOMASHINOSTROYENIYE, NO. 2, 1970, PP 21-23

DATE PUBLISHED--------70

SUBJECT AREAS--MECH., IND., CIVIL AND MARINE ENGR

TOPIC TAGS--METAL COMPRESSOR BLADE, BIBLIOGRAPHY, OSCILLATION, AXIAL FLOW COMPRESSOR

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--1997/1639 STEP NO--UR/0114/70/000/002/0021/0023

CIRC ACCESSION NO--AP0120393
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2/2 023 PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120393

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. USING A CONTACT FREE DISCRETE PHASE METHOD OF MEASURING THE VIBRATIONS (THE ELURA DEVICE) IT IS SHOWN THAT FOR A GIVEN BLADE RING THERE EXIST SEVERAL DIFFERENT INTRINSIC FORMS OF OSCILLATIONS (DIFFERENT DISTRIBUTIONS OF THE AMPLITUDES OF THE BLADE OSCILLATIONS IN THE CASE OF FLUTTER). IT IS ESTABLISHED THAT THE SCATTERING OF THE NATURAL FREQUENCY OF THE OSCILLATIONS OF THE BLADES BY 10 TO 60 TIMES. THE CONNECTION BETWEEN THE DISTRIBUTION OF THE FREQUENCIES AND AMPLITUDES OF THE OSCILLATIONS, AS A RULE, IS LACKING. IT WASNOTICED THAT EVEN IN THE CASE OF A SUBSTANTIAL DIFFERENCE OF THE FREQUENCIES OF NEIGHBORING BLADES THEIR AMPLITUDES AS A RESULT OF THE CONNECTEDNESS OF THE OSCILLATIONS DIFFER RELATIVELY LITTLE.

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1/2 022 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--ALLOYING OF THE HIGHER MANGANESE SILICIDE ON THE BASIS OF RESULTS OF MICROPROBE ANALYSIS -U-

AUTHOR-(04)-NIKITIN, E.N., SIDOROV, A.F., TARASOV, V.I., ZASLAVSKIY, A.I.,

COUNTRY OF INFO--USSR

SOURCE--IZV. AKAD. NAUK SSSR, NEORG. MATER 1970, 6(3), 604-5

DATE PUBLISHED--------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--MANGANESE COMPOUND, SILICIDE, SEMICONDUCTOR MATERIAL, BORON CONTAINING ALLOY, ALUMINUM CONTAINING ALLOY, GERMANIUM COMPOUND, ELECTRON MICROPROBE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1996/0827 STEP NO--UR/0363/70/006/003/0604/0605

CIRC ACCESSION NO--AP0118005

UNCLASSIFIED

2/2 022 UNCLASSIFIED

CIRC ACCESSION NO--AP0118005 PROCESSING DATE--16OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. ALLOYED SAMPLES WERE CRYSTD. IN QUARTZ AMPULS BY THE BRIDGMAN METHOD AT A CRYSTN. RATE OF 1 CM-HR. DURING THE CRYSTN. OF LIQ. OF COMPN. MNSI SUB1.7 GE SUB0.03, ONLY PARTIAL DISSOLUTION OF GE IN MN SUB11 SI SUB19 OCCURS. THE EXCESS GE FORMS A UNIFORM IMPURITH IN THE FORM OF A SI-GE SOLID SOLN. THE SOLY. OF GE IN MN SUB11 SI SUB19 IS SIMILAR TO 1.8 WT. PERCENT. THE SUBSTITUTIONAL SOLID SOLN. FORMED HAS THE COMPN. MNSI SUB1.715 GE SUB0.015. THE SUBSTITUTION OF A PART OF SI BY GE SHOULD NOT BE ACCOMPAINED BY A CHANGE IN ELEC. COND.; HOWEVER, A SLIGHT INCREASE IN ELEC. COND. OCCURS, WITH THE THERMAL EMF. REMAINING UNCHANGED. THIS INCREASE IN ELEC. COND. CAN THEN BE EXPLAINED BY INCREASED MOBILITY, WHICH IS CHARACTERISTIC FOR SEMICONDUCTOR MATERIALS WITH A DEFECT STRUCTURE. UPON ALLOYING MN SUB11 SI SUB19 WITH B, THE PPTN. OUT OF A CHEM. COMPD. OF THE COMPN. MNB AND OF FREE SI WAS OBSD. THE HIGH M.P. AND THE REGULAR LINEAR OUTLINES OF BOTH PHASES DISTINGUISHED THESE CRYSTALS FROM A EUTECTIC MIXT. THE SOLY. OF MNB AT ROOM TEMP. IS SMALLER THAN 0.6 WT. PERCENT. ALLOYING WITH B INCREASES THE CARRIER CONCN. WITHOUT NOTICEABLY DECREASING THE MOBILITY. THE DISSOLVED AL CONTENT IN MN SUB11 SI SUB19 ALONG THE LENGTH OF THE BOULE VARIED. IN THE PRESENCE OF GE, THE SOLY. OF AL AND B IN MN SUB11 S SUB19 INCREASE AT LEAST BY ONE ORDER OF MAGNITUDE. FROM ELEC. PROPERTY MEASUREMENTS, THE SAMPLES ALLOYED WITH B AND AL ARE CHARACTERIZED BY INCREASED ELEC. COND. AT HIGH TEMPS. AS COMPARED TO THE PURE MATERIAL. FACILITY: INST. POLUPROVOD., LENINGRAD, USSR.

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